CLAIMS:

1. (previously amended) A vehicle-mounted audible signal generator that produces a sound field pattern covering a geographic zone, said generator comprising:

a plurality of high power amplifiers;

a plurality of loudspeakers connected to said plurality of amplifiers and arranged in a predetermined array on a vehicle; and

a digital signal processor (DSP) configured to supply a plurality of signals for driving the plurality of amplifiers and loudspeakers, the DSP configured to dynamically control frequencies, amplitudes, and phases of the signals such that the loudspeakers produce a determined sound field pattern having a high amplitude covering a geographic zone, and whereby the sound field pattern dynamically changes as the vehicle advances toward the geographic zone.

2. (previously amended) An audible signal generator in accordance with claim 1 further including a location determination device connected to said DSP and configured to calculate said sound field pattern.

3. (original) An audible signal generator in accordance with claim 2 wherein said location determination device comprises a geo-location positioning system (GPS).

4. (original) An audible signal generator in accordance with claim 2 wherein said location determination device comprises a fixed transmitter located at a predetermined location.

5. (original) An audible signal generator in accordance with claim 1 further including a database connected to said DSP and configured to store said plurality of signals.

6. (original) An audible signal generator in accordance with claim 5 wherein said plurality of signals is stored as pulse code modulated (PCM) data.

7. (canceled)

8. (original) An audible signal generator in accordance with claim 1 further including a motion detector, said DSP further configured to change the predetermined high amplitude pattern responsive to said motion detector.

9. (original) An audible signal generator in accordance with claim 5 further including a position detector wherein said DSP is further configured to select one of said plurality of signals responsive to said position detector.

10. (original) An audible signal generator in accordance with claim 5 further including a time of day detector wherein said DSP is further configured to select one of said plurality of signals responsive to said time of day detector.

11. (previously amended) An audible signal generator in accordance with claim 1 further including a temperature sensor wherein said signals generated by said DSP are responsive to said temperature sensor.

12. (previously amended) An audible signal generator in accordance with claim 1, wherein said plurality of high power amplifiers comprise a class D amplifier.

13. (original) An audible signal generator in accordance with claim 1 further including a manual activation device.

14. (original) An audible signal generator in accordance with claim 1 wherein said DSP is further configured to produce said determined pattern by sweeping a region of high amplitude in said determined pattern.

15. (previously amended) A train whistle adapted for operation on a moving locomotive to produce a sound field directed toward a predetermined geographic zone, the train whistle comprising:

a plurality of high power amplifiers;

a plurality of loudspeakers connected to said plurality of amplifiers and arranged in a predetermined array on said locomotive; and

a digital signal processor configured to supply a plurality of signals for driving the plurality of amplifiers and loudspeakers and to control frequencies, amplitudes, and phases of the signals such that the loudspeakers produce a sound field directed toward a pre-determined geographic zone, and whereby the sound field dynamically changes as the locomotive advances toward the geographic zone.

16. (previously added) A train whistle in accordance with claim 15 wherein the predetermined geographic zone comprises a roadway near a grade crossing.